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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,902	06/28/2001	G. William Walster	SUN-P4717-SPL	9482
22835	7590	08/26/2004	EXAMINER	
PARK, VAUGHAN & FLEMING LLP 508 SECOND STREET SUITE 201 DAVIS, CA 95616			CHAVIS, JOHN Q	
			ART UNIT	PAPER NUMBER
			2124	
DATE MAILED: 08/26/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/895,902	<b>Applicant(s)</b> WALSTER, G. WILLIAM	
	<b>Examiner</b> John Chavis	<b>Art Unit</b> 2124	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)    •                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The claimed invention is directed to non-statutory subject matter. The applicant claims (for example in claim 1) a method for automatically computing a derivative; however, nothing in the claim appears automatic. Therefore, the automatic feature is considered merely a desired result. Furthermore, the applicant claims "receiving a representation of the numerical expression...", which is merely considered a data gathering step. Then the applicant claims "forming an expression tree...", which is considered merely setting up an equation or a group of equations to be solved. Then he mentions another desired result "wherein..." and finally he use the expression tree to solve a problem. Therefore, the method is considered to merely generate a numerical output (compute the derivative of a numerical expression). The dependent claims (2-10) are not considered to overcome the problems associated with the independent claim.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

Art Unit: 2124

obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plum et al. (4,817,027).

ClaimsPlum

1. A method for automatically computing a derivative of a numerical expression within a digital computer system:

See col. 2 lines 42-48.

receiving a representation of the numerical expression...

forming an expression tree for the derivative of the numerical expression...

See col. 2 lines 48-55.

wherein forming the expression tree involves seeking to introduce only temporary variables and associated sub-expressions as necessary...

See col. 2 lines 60-64. Plum's matrix is considered to provide for the expression tree. This feature is considered in Plum's system to minimize memory requirements, see col. 11 lines 40-50 and col. 12 lines 53-56.

using the expression tree to compute the derivative...

See col. 3 line 54-col. 4 line 17. Also, see col. 13 lines 30-49. The reference to col. 13 is considered to provide for the computing of the entire derivative, although it is not explicitly indicated. However, assuming it is not, the feature is taught by Wengert, see his elementary functions in the appendix. Therefore, with all of the partial derivatives computed by Plum, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the partials to provide a complete solution to the entire problem at hand when required, via Wengert's library of elementary

functions for automatic evaluation and  
differentiation of total/partial derivatives.

The features of claims 2-4 are considered taught by claim 1 above.

Plum does not specific indicate the features of marking variables and deleting the unmarked (pruning) ones in claims 5-6. However, the feature would have been obvious to a person of ordinary skill in the art at the time of the invention to delete unused items, especially in systems where memory requirements are a main issue, see again the response via Plum's to the wherein feature of claim 1.

The features of claims 7 and 9-10 are merely descriptive material that is not considered to modify the method. Furthermore, the features are considered taught by the cited portions of claim 1 above.

As per claim 8 the feature of utilizing a pre-compiler is not specifically taught by Plum; however, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the feature in Plum's system to reduce compile time and therefore utilize less memory during the compiling process.


Claims 11-20 and 21-30 are rejected as claims 1-10 above.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Chavis whose telephone number is (703) 305-9665. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jqc  
August 20, 2004

  
JOHN CHAVIS  
PATENT EXAMINER  
ART UNIT 2124